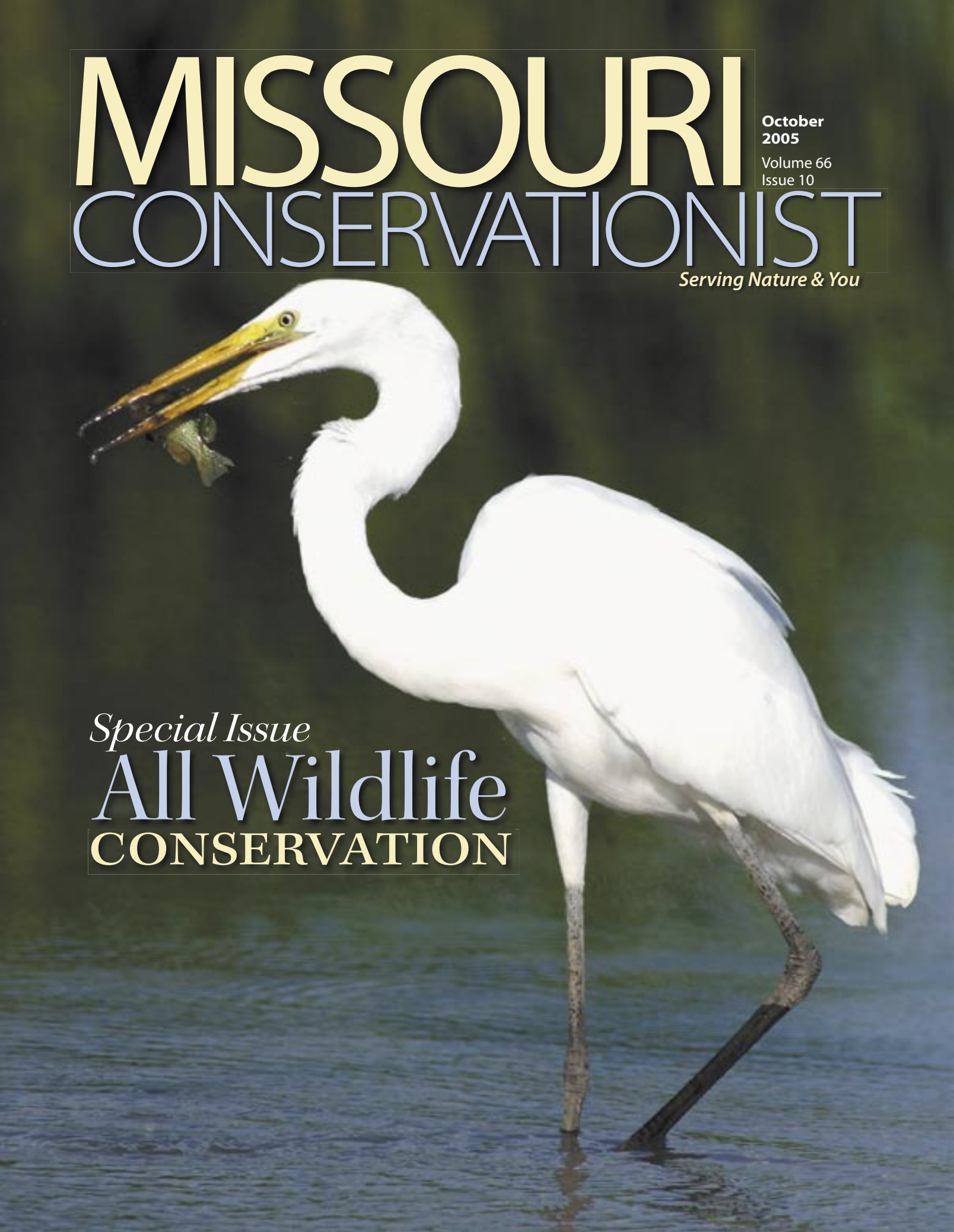

MISSOURI CONSERVATIONIST

October 2005
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Serving Nature & You

Special Issue

All Wildlife CONSERVATION

Working to Conserve All Wildlife

This edition of the *Conservationist* is devoted to the theme of "All Wildlife Conservation." It highlights a renewed Department focus to conserve a broad array of wildlife and plants in recognition that all living things are part of a complex system.

I first learned the phrase "web of life" in high school at about the same time I watched Neil Armstrong walk on the moon! Our biology class took a field trip to Peck Ranch Conservation Area to observe Conservation Department efforts to restore wild turkey in Missouri.

In those days, Peck Ranch was a wildlife refuge managed for turkeys and other species used to stock areas of the state where population restoration was thought possible. The busy refuge manager, Willard Coen, explained the type of vegetation turkeys preferred and showed us the cannon-net technique he used to trap the live birds. He topped the trip off by showing a Department movie called "Return of the Wild Turkey" created by Glenn Chambers, and Elizabeth and Charles Schwartz.

Obviously, that field trip over thirty years ago left an impression about the management of turkeys. It was only back in the biology classroom that we explored how all living things depend upon one another to survive and flourish.

I expect many people think the Conservation Department's research expertise focuses upon single species, since some of the best known success stories involve bringing back fish, trees or wildlife that we now highly value.

Today we strive to conserve wildlife in a broader sense—trees, insects, wildflowers, grasses, animals and all the rest. The descriptive phrase often heard is "preserve and restore our state's biodiversity."

This concept started in the early 1970s with the Design for Conservation. It called for a system of Natural Areas to preserve the best examples of forests, prairies, marshes and glades. Missouri is blessed with rich and diverse natural resources and improving habitats that serve the widest variety of wildlife is the key to conservation progress. It is no longer wise, nor practical, to devote energies to each species, one at a time.

Natural habitats are lost or degraded at an alarming rate as the human population continues to grow and alter the use of lands. Invasive and exotic species like kudzu vines and zebra mussels are further intruding on our state's land and waters. The full impacts of these landscape changes are not clearly understood, but we do know that addressing them is an essential part of any effective action plan.

Ornithologist Andy Forbes (right) guides Director John Hoskins on a birdwatch near Jefferson City.

Fortunately, conservation employees do not face these challenges alone. Many partners are committed to sharing resources and achieving common goals.

First and foremost, individual landowners are critical partners because 93 percent of Missouri is in private ownership. Thousands of conservation-minded landowners want to be good stewards of the land and natural resources. We are committed to assisting them and to forming landowner groups with similar goals.

There are also numerous conservation groups, organizations, and public agencies committed to progress on this cooperative conservation effort. The President and Congress express similar support for conservation partnerships and, in recent years, are providing more funding to states to implement programs maximizing benefits to all forms of wildlife.

This *Conservationist* is a showcase of our state's diverse habitats and the many interesting plants and animals that consider Missouri home. As you enjoy the magazine, also consider the challenges faced, the partnerships needed, and the actions required to make wildlife conservation successful in all of its forms.

We are dedicated to helping Missourians preserve our state's great natural heritage for new generations. With the contributions of landowners, farmers, hunters, anglers, bird watchers and all other Missourians interested in our fish, forests and wildlife, anything is possible.

John D. Hoskins, Director

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Send correspondence to: Circulation, P.O. Box 180, Jefferson City, MO 65102-0180.
Phone: 573/522-4115, ext. 3856 or 3249
E-mail general questions: *ken.drenon@mdc.mo.gov*
E-mail magazine subscriptions: *subscriptions@mdc.mo.gov*

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CIRCULATION Laura Scheuler

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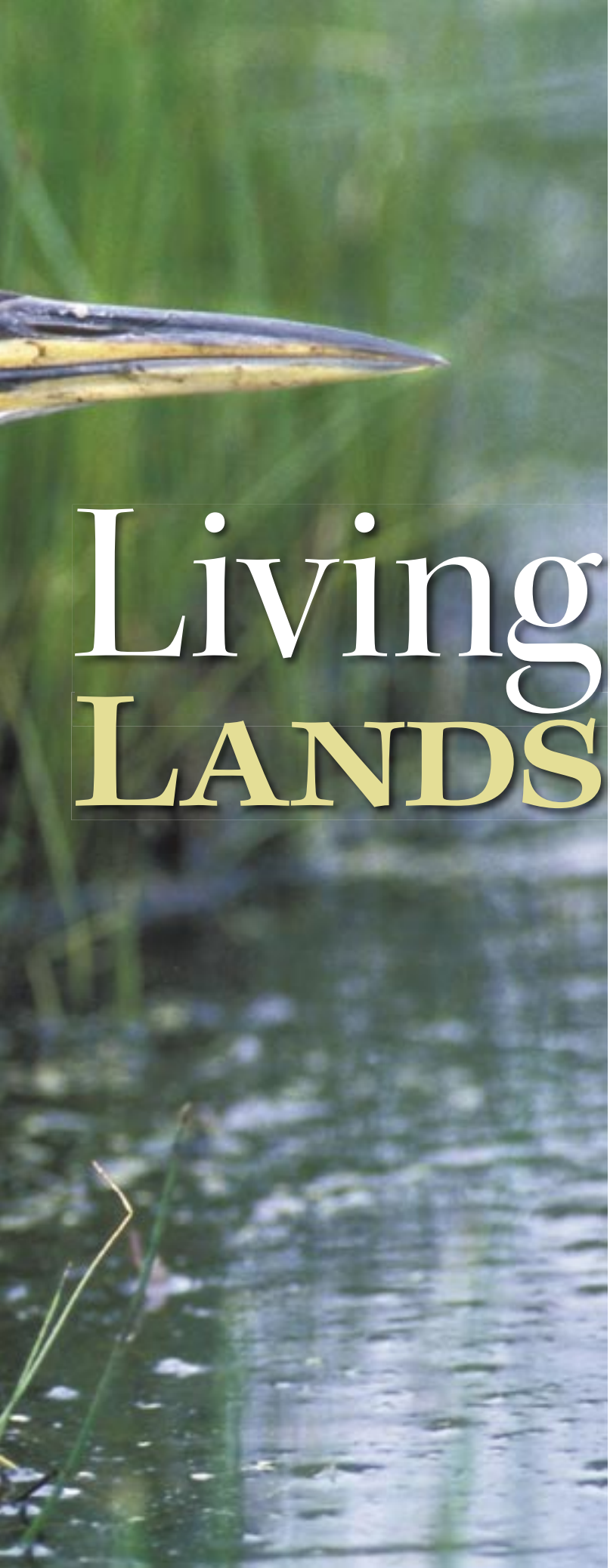


Living Landscapes

An All Wildlife strategy calls for conservation where it can do the most good.

BY DENNIS FIGG

I once listened to a speaker talk about "living landscapes," and I liked that. The land is living. The soils support plants, the plants produce animals. We live, work and play in a land that is very much alive.

It's easy to be aware of the species we know and like, such as eastern bluebirds, purple coneflowers and white-tailed deer. People harbor them, encourage their favorite species and, when necessary, protect them.

The living landscape, however, contains many more species. Most of these escape our notice. They include the plants and insects that form the food chain of our most likeable animals, as well as species, like the bluestripe darter, that we seldom encounter because they only inhabit wild places.

All living things exist in an utterly complex relationship that includes terrestrial and aquatic, familiar and unfamiliar, and large and small plants and animals.

Missouri is a biological wonderland. We have 212 species of native fish in the state, and more than 400 species of birds, 167 of which live and breed in the state.

In addition to our many species of crayfish, lizards, snakes, salamanders, bats, frogs and toads, we have hundreds of species of butterflies, thousands of species of moths and tens of thousands of invertebrate animals, such as snails, earthworms, spiders and beetles.

Plants make this complex web of life possible. More than 2,770 species of plants grow in Missouri. A little more than 2,000 of them are native to the state. We all like oak trees, but did you know that there are more than 21 different species of oak trees in Missouri? We also have 35 species of native orchids.

The web of life is so complex, it's nearly impossible even to name all the parts, much less to trace the relationships among all the species.

All Wildlife Conservation

All Wildlife Conservation is about conserving all plants and animals, and the natural systems they depend upon.

This approach of looking at entire natural communities differs from traditional fish and wildlife management, which focuses on single species. Focused management may be necessary to produce an abundance of a species like deer or turkey, but it's too narrow an approach for the diversity we have in Missouri.

The same goes for endangered species management. This approach is best considered emergency conservation that is necessary to prevent the extinction of a species.

All Wildlife Conservation is inclusive and comprehensive. It's about nurturing the conditions that nurture the parts—all the parts.

People ask if All Wildlife Conservation includes zebra swallowtail butterflies. Sure it does. To keep zebra swallowtails in Missouri we need healthy, rich forests of oak trees with an understory of paw paw shrubs. Why paw paws? Because they are the host plants for the zebra swallowtail caterpillar. Do we need caterpillars? Sure we do. A lot of birds and other animals depend on caterpillars for food. If we want bluebirds, then we must have insects. If we want quail, then we must have insects and plant seeds. If we want plant seeds, then we need insect pollinators. That means we also have to conserve wasps and bees.

Our domesticated landscapes support only a tiny percentage of Missouri's plant and animal species. It's not that these species hide from us, but that they live most successfully in places where we don't live and seldom visit. Field sparrows nest in grasslands. Red shiners swim in creeks. Swamp rabbits perch on downed logs in swampy forests. Flying squirrels fight chickadees for tree holes in woodlands. Spotted salamanders breed in temporary pools of quiet water in forests.

Monarch on Rough blazing star

Managing all these species individually is impossible. The best approach is to divide groups of plants and animals into the broad habitat groups in which they are found and then manage those habitats. We believe that healthy habitats allow all the species that live in them to thrive.

Finding Habitats

When we think of habitats, we often think of forests, woodlands, savannas, prairies, glades, cliffs, wetlands, caves, rivers or streams. However, we've found it is helpful to focus on the state's four ecological regions. These regions have different geologic history, soils, topography and weather that have resulted in characteristic associations of plants and animals.

Managing all these species individually is impossible. The best approach is to divide groups of plants and animals into the broad habitat groups in which they are found and then manage those habitats.

Paw paw

Mink

The four regions—the Central Dissected Till Plains, Osage Plains, Ozark Highlands, and Mississippi Alluvial Basin—extend into other states. It is because they all meet in Missouri that we have such high biodiversity.

Not all locations within these regions are suitable for managing for a variety of species. Much of our land has already been claimed for urban areas, living space, food production and transportation. Instead, All Wildlife Conservation calls for identifying and conserving representative habitats across the state in each of the four ecological sections. We think of these areas as conservation opportunities. They don't require fixing the unfixable; we know that conservation action on these areas will almost certainly result in healthy habitats.

The management blueprint for each area will vary. Our efforts might be limited to monitoring the health of a natural community. In other cases, it might mean cleaning up streams, managing or restoring plant communities or guarding against invasive species.

Managing all wildlife may seem challenging, but the task is approachable when defined as encouraging and protecting only habitats in which all wildlife can thrive.

This issue contains an overview of our approach to wildlife management in the four regions. We discuss species and habitats and identify at least one conservation opportunity area within each region. We also identify partners whose conservation interests are shared by the Department. Partners, whether landowners, outdoor interest groups or government agencies, make conservation possible in Missouri.

Big Spring

We are deeply committed to conserving Missouri's plant and animal communities. We believe our All Wildlife Conservation strategy will maintain the astounding diversity of species that occupy our living landscapes.

This All Wildlife Conservation issue of the *Conservationist* is reaching Missourians as we submit a Comprehensive Wildlife Conservation Strategy (CWCS) to the U.S. Fish and Wildlife Service. This strategy is our approach to a strong program that will conserve native plants, animals and the habitats they depend upon. The Strategy is a federal requirement that will allow Missourians to obtain additional federal funds called State Wildlife Grants. ▲

We believe our All Wildlife Conservation strategy will maintain the astounding diversity of species that occupy our living landscapes.

Ozark witch hazel

Ozark sculpin

Sunflowers and Blazing stars

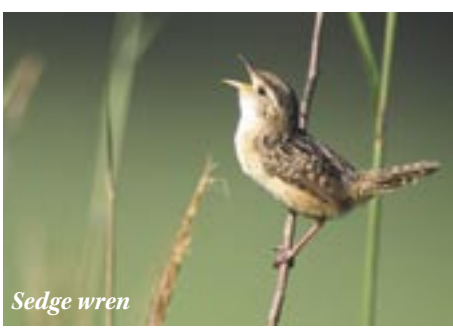
Missouri's Northern Plains

Deep soils support diverse natural landscapes in Missouri's Central Dissected Till Plains.

Glaciers shaped northern Missouri. Like giant earth-movers, they pushed sand, rocks, gravel and boulders as far south as the Missouri River. Even areas the glaciers didn't touch were covered with glacial sediment and shaped by erosion from glacial runoff.

Driving through northern Missouri, it's difficult to imagine anything but crops and pastures, interspersed with forests. Underlying the region's rolling hills and gentle slopes, however, are deep, fertile soils that once supported a vast range of prairies, savannas and woodlands.

The northern part of Missouri, above the Missouri River, constitutes the ecological


Sedge wren

Northern Missouri was once a patchwork of prairies, savannas and woodlands.

region called the Central Dissected Till Plains. The name is a mouthful, but the words define the region's characteristics.

Plains refers to an area that is generally flat, level and open. *Till* refers to the type of soil, in this case, a mix of clay, sand, gravel and even boulders deposited by past glaciers. Soil was also deposited by winds blowing across the Great Plains. In some places this wind blown soil, or loess, is 25 to 100 feet thick.

Central means that it's part of a larger area of dissected till plains. The Central Dissected Till Plains extend into parts of Iowa, Kansas, Nebraska and Illinois.

Dissected means cut by erosion into valleys and hills. Much of this erosion resulted from glacial runoff.

High prairie landscapes containing savanna and woodland characterize the Central Dissected Till Plains. Tallgrass prairie and savannas once occupied the drier, more fire-prone ridges and upper slopes, while woodlands occurred on side slopes and draws.

Many species are restricted to this region of productive glacial soils. These include plants like western prairie fringed orchids, ostrich ferns and rose turtlehead; also animals like Franklin's ground squirrels, northern prairie skinks and Topeka shiners.

On the till plains, wide, windblown floodplains of the Missouri River and the Mississippi River became a complex of sandbars, marshes and wet prairies. Annual flooding probably kept these natural communities from becoming well established in any one place. Both the Grand River and the Chariton River, major tributaries to the big rivers, functioned similarly, producing floodplains that were mostly open prairies and wetlands. ▲

Union Ridge

Susan Harris and son Jonas

"We've protected over 120,000 acres in Missouri, and we plant and manage about 20,000 acres. We work to preserve the natural resources that are unique to Missouri for future generations."

Susan Harris, Missouri state director of The Nature Conservancy

Franklin's ground squirrel

Prairie fringed orchid

Eastern bluebird

Conservation Opportunity

Before the 1800s, there were more than six million acres of savanna habitat in Missouri. Common species such as northern bobwhite quail, red-headed woodpeckers, field sparrows and brown thrashers thrived in these savanna communities. Today, much of the till plains has been converted to productive pastures and cropland.

There are many conservation opportunities in the Central Dissected Till Plains. Union Ridge Conservation Opportunity Area represents one of our best examples of the prairie-savanna edge that was once typical of northern Missouri.

Natural or human-caused fires, as well as grazing bison and elk, historically maintained savanna and associated prairie and woodland natural communities. The Department has been using carefully controlled prescribed fires to recreate habitat at Union Ridge.

There is also great potential to improve populations of northern bobwhite quail as a result of natural community management at Union Ridge.

Northern Plains

Invasive Mustard

Garlic mustard *(Alliaria petiolata)* is an invasive exotic plant that can proliferate on the ground in woodlands and forests and choke out native plants. Native to Europe and eastern Asia, it was planted for use as a kitchen herb. It persists at old home sites.

Garlic mustard primarily spreads by flooding. Techniques for control include prescribed fire in the spring and hand-pulling or herbicide application before seeds are produced.

Garlic mustard

Topeka shiner

Prairie Streams

Streams in the Central Dissected Till Plains often meander across broad, flat valleys. They are fed mostly by runoff, or by slow percolation through deep soils and plant roots. Topeka shiners, plains killifish and trout-perch are all characteristic species of the prairie region.

Star School Hill Prairie

Star School Hill Prairie Natural Area

Prairie plant communities on loess hills include rare species, such as blue and hairy grama grass, yucca, silvery psoralea and skeleton plant. These grow among the more common prairies species, such as big and little bluestem, purple prairie clover and lead plant. Rare animals found here include the plains pocket mouse and the Great Plains skink.

White-tailed deer fawn

Conservation Partnerships

This summer, a nearly 2,700-acre addition to B.K. Leach Conservation Area opened and became fully operational as a new wetland wildlife area in Lincoln County.

This project required nearly $6 million for acquisition and restoration of critical wetland habitat, with only $1 million coming from the Missouri Department of Conservation. A group of seven other conservation organizations and agencies contributed the remainder.

This new wetland wildlife area was developed to provide habitat for least bitterns, rails and other marsh-nesting wildlife. It will be a popular, nearby birding destination for St. Louis residents.

Great egret

Morgan County

Missouri's High Country

Rugged landscapes support plants and animals unique to Missouri's Ozark Highlands.

When seen from an airplane, much of the present-day Ozark landscape looks forested. Yet multitudes of trees do not necessarily add up to forests. The Ozark landscape is a complicated association of forests, woodlands, savannas, glades, cliffs, caves, springs, rivers, streams, sinkhole ponds and fens.

Though the Ozark Highlands region appears mountainous, it is really a broad plateau that has been cut, or dissected, by erosion.

The highest and least rugged parts of the Ozarks tend to be flat to gently rolling plains that formerly were covered with prairies, savannas and open woodlands. Near drainages, the


Indigo bunting

Some of the largest tracts of forest in the Midwest are in the rugged Ozark hills.

High Country

plains give way to rolling hills and then to rugged, highly eroded hills that formerly supported oak-pine woodlands and forests.

Most Ozark streams are spring-fed and occupy narrow, twisting valleys. Erosion has cut through the layers of bedrock to create underground passages and caves. Many stream channels "lose" water to subterranean passageways, which resurfaces as springs or fens, or at the mouths of caves.

The plants and animals of the Ozarks are as diverse as the landscape. The slow process of erosion allows plenty of time for plants and animals to adapt and change. More than 200 endemic species are present in the Ozark Highlands.

Endemic species are those found only within a restricted geographic range. Some familiar species endemic to the Ozarks include the Niangua darter, Missouri bladderpod, the Neosho mucket, the Ozark cavefish, purple penstemon and the Missouri woodland swallowtail. ▲

Collared lizard

White River Balds Natural Area

Wood scorpion

Lichen grasshopper

Greater roadrunner

Purple beardtongue

Conservation Opportunity

Roaring River Conservation Opportunity Area is a land of rugged hills, deep hollows, a river that roars and hilltops with some of the largest glades in Missouri.

Glades are dry, rocky areas in the uplands of the Ozarks. They are home to animals and plants not typical to Missouri's climate. Essentially deserts, glades provide habitat for roadrunners, scorpions, tarantulas and giant centipedes. The glades and woodlands also are home to characteristic Ozark species, such as collared lizards, painted buntings, blue-gray gnatcatchers, summer tanagers and fence lizards.

Many of these species are declining in number. Cedar trees now cover 95 percent of the former glade habitat and though hundreds of acres of glades and woodlands still exist, the fires that promoted essential plants and kept red cedars under control have been prevented in the past 100 years. The open, grassy glades and associated woodlands can be restored, but it will require removing many acres of cedar trees, as well as the use of prescribed fires.

Conservation Partnerships

Roaring River State Park, managed by the Missouri Department of Natural Resources, is central to this conservation opportunity. Both the State Park and Mark Twain National Forest plan to increase management for glade and woodland wildlife in the decade ahead.

Missouri Bird Conservation Initiative

The Missouri Bird Conservation Initiative brings together organizations and agencies dedicated to bird conservation. Some of the 37 members are Audubon Missouri, the Audubon Society of Missouri, Ducks Unlimited, the Missouri Prairie Foundation, the Missouri Falconry Association, the National Wild Turkey Federation, Quail Unlimited, the Ruffed Grouse Society, Webster Groves Nature Study Society and several governmental agencies.

The Missouri Bird Conservation Initiative helps disperse funds to organizations willing to develop and manage bird habitat on private and public lands. The emphasis is on cooperative bird habitat projects involving several organizations and grassroots citizen participation working together.

Blue-gray gnatcatcher

"State government and private organizations can bring different capacities to bear to get things done. So, often when you match the private sector with the public sector you can really magnify the amount of work you can get done on the ground for all species."

Roger Still, executive director of Audubon Missouri

Downy woodpecker

Ovenbird

LaBarque Creek

Roger Still

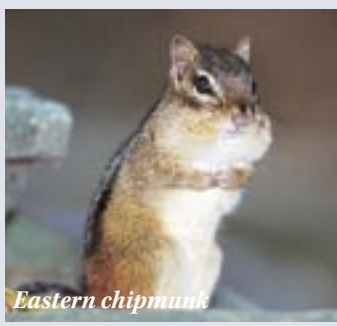
Freckled crayfish

Niangua darter

LaBarque Creek

High in the Ozark uplands of the Meramec River basin is a 13-square-mile, nearly pristine watershed called LaBarque Creek. The creek has carved cliffs, waterfalls, bowls and overhangs in the soft sandstone. The resulting deep, moist canyons and ravines contain several plants found at only a few other sites in Missouri.

LaBarque Creek provides more than 6 miles of permanently flowing stream that supports 36 species of fish, including rock bass and green sunfish.



Eastern chipmunk

The low level of disturbance in the watershed means the fish and wildlife diversity of the stream remains healthy. This aquatic diversity is close to the St. Louis area, making this watershed an excellent candidate for strategic conservation action.

High Country

Invasive Autumn Olive

The shrub autumn olive (*Elaeagnus umbellata*) is an exotic invasive plant in the Ozark Highlands. It is native to China, Japan and Korea, but it was planted in the United States as early as 1830. It has been widely planted in Missouri since the 1960s for wildlife food and cover, as screens and windbreaks and for mine reclamation.

The plant's fleshy fruits are relished by birds, which disperse the seeds from planting sites into the surrounding countryside. Today, autumn olive is most abundant in old fields, pastures and roadsides, but it can also invade open woodlands and prairies. It will spread at the expense of native shrubs and other native vegetation and, once established, is very difficult to control. Cutting and applying herbicide is the most effective management option.

Autumn olive

Southern flying squirrel

Shortleaf pine

Pulltite Spring

Sunklands Natural Area

The Sunklands Natural Area occurs in a remote part of the Ozark Highlands. Nearly a mile long, the Sunklands sinkhole complex is the longest karst valley in Missouri. Typical features of karst areas include deep sinkholes, caves, springs and streams that flow underground.

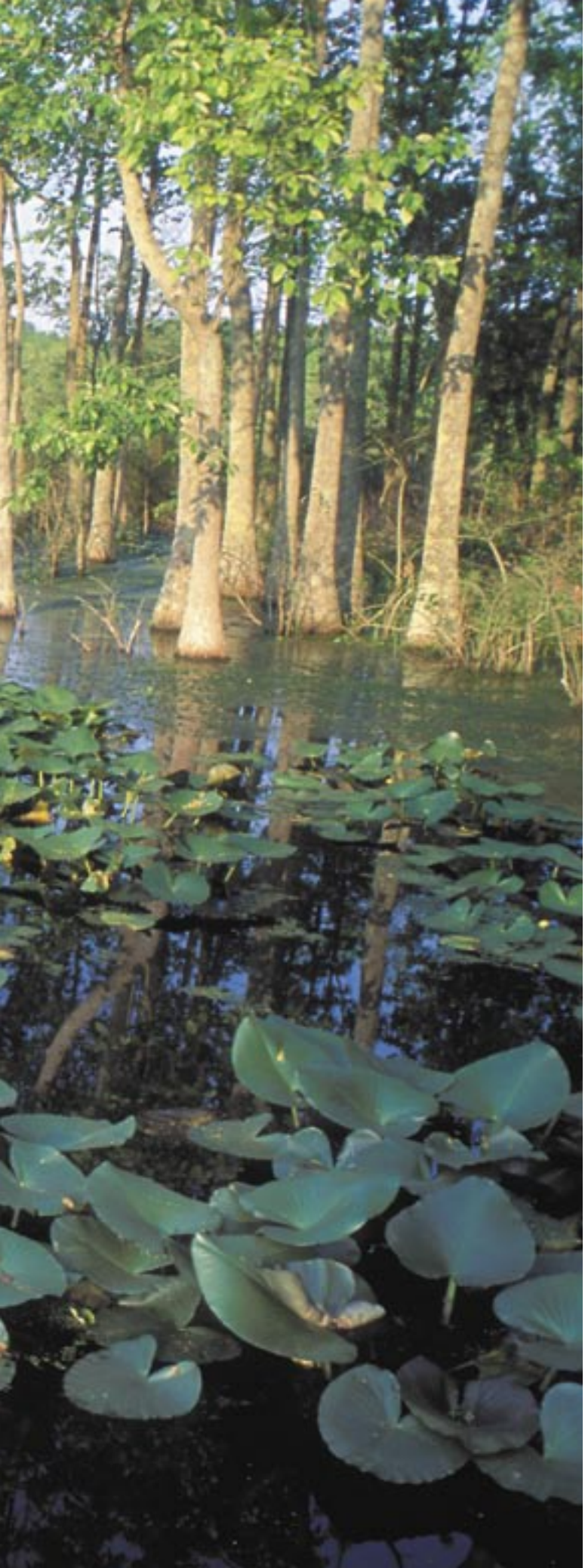
Within the Sunklands, a dry sinkhole called the Devil's Den is about 200 feet deep. A rocky forest filled with mosses and ferns grows on the bottom. Big Yuccapin Basin is a shallow, wet sink with a pond marsh that has a floating mat of grasses, sedges and shrubby vegetation. Little Yuccapin Basin is mostly dry and almost completely forested, but it contains a 1-acre shrub swamp. Pulltite Spring is also included in this natural area.

The oaks that now dominate the woodlands are being thinned to allow light-loving pine seedlings to become established and to let more grasses and forbs grow on the woodland floor. Shortleaf pine was once the primary tree species in this area, but was cut heavily at the turn of the century.

Cavefish

Scarlet tanager

Water tupelo trees and Spatterdock



Missouri's Bootheel Wetlands

The bottomlands of Southeast Missouri are also known as the Mississippi River Alluvial Basin.

Vast bottomland forests and swamps once covered 2.5 million acres of the Bootheel of Missouri. The deep soils here resulted from sediment left by the Mississippi and Ohio rivers. This broad river floodplain, called the Mississippi River Alluvial Basin, is the northernmost portion of a natural system that extends all the way to the Gulf of Mexico.

Frequent flooding played a significant role in the creation and maintenance of the complex wetlands of this ecological region. The *alluvial* in its name describes soils deposited by flowing water. A *basin* describes a low area.

First-time visitors to the Bootheel are usually surprised at how flat the land appears. In marked


Yellow-crowned night-heron

We have a good opportunity to sustain wildlife that characterizes the bottomland forests and lowland swamps.

Bootheel Wetlands

contrast to the rugged Ozarks, the region contains little topographical relief. There are sandy terraces or natural levees that rise above the flat plain, and there is Crowley's Ridge, a ridge of loess-covered alluvial soil left isolated by historic channel changes of the Mississippi River.

Unlike the rest of the Bootheel, the forests of Crowley's Ridge include several eastern forest species like American holly, American beech, beech drops and tulip tree. There are also unusual acid-seep communities with rare orchids and sedges.

The first settlers to come to the Bootheel encountered a wilderness of wet bottomland forests, swamps, marshes and oxbow lakes. Though these features are now rare in this region, there are still remnants where we have a good opportunity to sustain the wildlife that characterizes southeastern Missouri. ▲

Green treefrog

Baskettail dragonfly

"We are sharing $11 million of DU money with MDC to promote and accelerate the wetlands conservation work that goes on in Missouri. MDC would probably get a lot of it done by themselves, but we'd like to think we can accelerate the process a bit."

Scott Manley, director of conservation programs for Ducks Unlimited

Scott Manley

Banded pygmy sunfish

Black-crowned night-heron

Mingo Basin Conservation Opportunity Area

Conservation Opportunity

Mingo Basin Conservation Opportunity Area contains the largest tract of bottomland forest in Missouri. Just off the southern edge of the Ozarks, Mingo Basin formed 18,000 years ago when the Mississippi River shifted east. It left a dense swamp in the abandoned river channel between the Ozark Highlands and Crowley's Ridge.

Today, this low wetland includes backwater sloughs, marshes, open water, bottomland forests, cypress-tupelo swamps, shrub swamps, upland woodlands and agricultural land, as well as a tremendous diversity of wildlife.

Mingo National Wildlife Refuge is the core of this conservation opportunity area. The refuge and Duck Creek Conservation Area together contain more than 17,000 acres of bottomland forest.

All Wildlife management in the Mingo Basin Conservation Opportunity Area will be accomplished through existing conservation partnerships with Ducks Unlimited, Mingo Swamp Friends, University of Missouri's Gaylord Memorial Laboratory and the U.S. Fish and Wildlife Service.

Bootheel Wetlands

Invasive Kudzu

One of the most conspicuous invasive exotic plants in the Mississippi River Alluvial Basin is kudzu (*Pueraria montana*). Brought here from Japan in 1876, it was promoted for uses such as livestock forage and erosion control. This sprawling vine can cover large areas by growing along the ground or by climbing brush or trees. Its dense foliage shades any plants beneath it, eventually smothering them. Kudzu was designated as a state noxious weed by the Missouri legislature in 2001, requiring its control by state agencies and landowners.

Kudzu

Western mud snake

Allred Lake Natural Area

Wetland Wildlife

More than 35 species of fish, turtles, snakes and other vertebrates are found nowhere else in Missouri except in the lowland swamps and muddy waters of the Mississippi Alluvial Basin.

Many of these species occur all the way to the Gulf Coastal Plain but reach their northern limits here in the Missouri Bootheel.

Lowland backwaters and sloughs harbor cypress minnows, swamp darters, slough darters, cypress darters, Cajun dwarf crayfish and red swamp crayfish.

Other specialized animals adapted for life in abundant, fluctuating waters include the huge alligator gar, the equally imposing alligator snapping turtle, the Mississippi mud turtle, the western mud snake, the mole salamander and the three-toed amphiuma, the longest salamander in North America.

Mole salamander

JEFF BRIGGLER

Swamp rabbit

Allred Lake Natural Area

A unique remnant of presettlement Missouri, Allred Lake Natural Area contains trees more than 400 years old and 6 to 8 feet in diameter. Elevation on the area varies only about 10 feet from the surface of the lake to the highest ground, but that is enough to sustain two other forest communities.

The cypress-tupelo swamp surrounding Allred Lake is one of the best examples of this natural community type remaining in the state. Two endangered fish—the swamp darter and the taillight shiner— live in the murky waters of the lake and connected slough.

The wet bottomland forest contains a mix of willow oak, water oak, water locust, sweet gum, cypress and tupelo. On higher sites, the forest contains oaks—including overcup oak—sweet gum, pecan, red mulberry, slippery elm, paw paw and the largest native Missouri grass, giant cane.

Hi Lonesome Prairie

Missouri's Tallgrass Country

Vast prairies and scattered savannas once blanketed the Osage Plains.

Tallgrass prairies, with grasses deep enough to hide a horse and its rider, once covered 15 million acres of Missouri. The prairie around present-day Cole Camp extended, nearly unbroken, all the way to the Great Plains. Today less than 1/10th of 1 percent of tallgrass prairie remains.

Glaciers never deposited till on the Osage Plains, so the soils in this region are shallower and less fertile than those of north Missouri. Sandstone, limestone and chert are often found near the soil surface.

Although most of the Osage Plains are now converted to pastures of non-native grasses or cropland, the presettlement vegetation of the Osage Plains was almost

Many tallgrass prairie remnants persisted because they were too rocky to plow.

completely grasslands. As much as 80 percent was covered with tallgrass prairie.

As they did throughout the Great Plains, millions of bison and billions of prairie dogs maintained the plains. The huge herds of bison trampled the topsoil, which was then mixed and aerated by the digging of prairie dogs. Raging wildfires burned dead grass and encouraged new growth, keeping the plains in a constant state of renewal.

We no longer have the tools or ingredients necessary to sustain vast prairies, but there are significant opportunities to restore functioning grasslands that will conserve prairie plants and animals. ▲


Mead's milkweed


Upland sandpiper


Greater prairie chickens


Thirteen-lined ground squirrel

Grasslands Coalition

▲ The Grasslands Coalition is a partnership of nearly 15 conservation organizations, state and federal agencies and businesses dedicated to the preservation and management of native grassland wildlife.

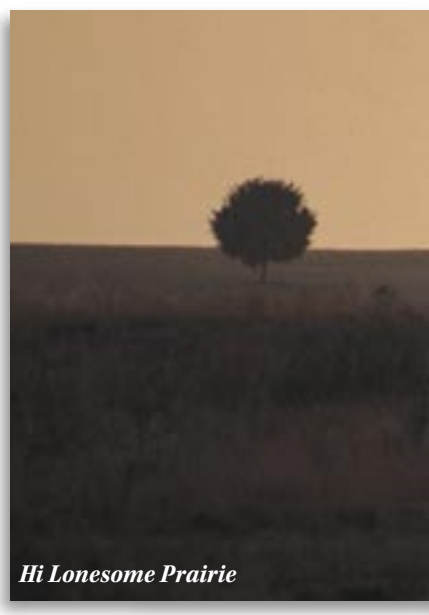
The Missouri Prairie Foundation, a small but dedicated group of prairie enthusiasts, organized the Grassland Coalition and has secured funding for prairie management on public and private lands through a number of national conservation-oriented foundations. Central to their mission is the recovery of greater prairie chickens, which receive additional attention in nine focus areas across the state.


R.E. Harris

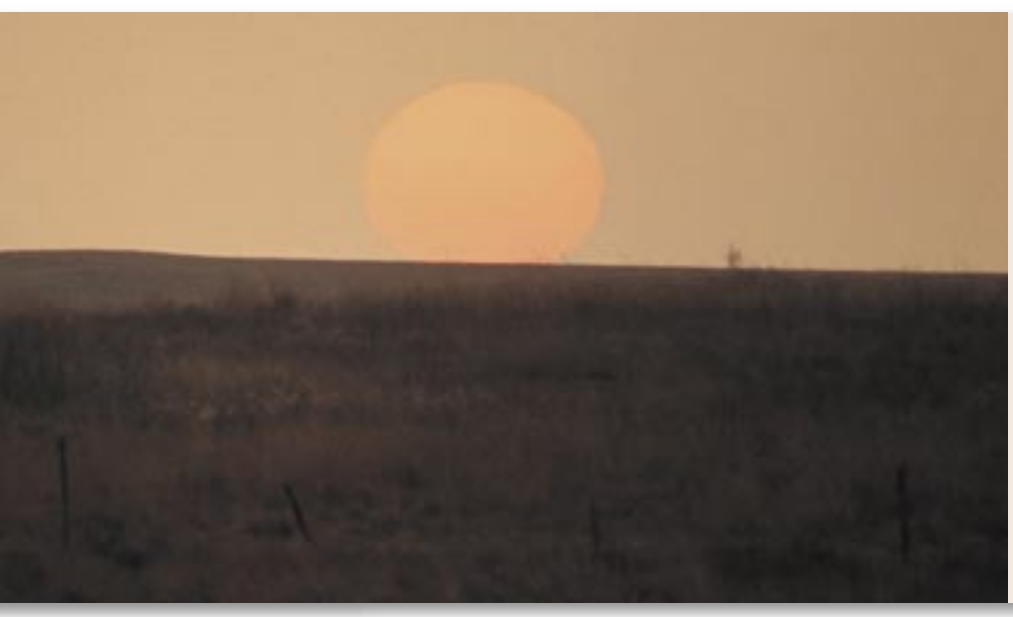
JEREMY RUZICH

"The prairie is part of my youth. We kind of expected that it would always be there. Now we realize that it will only be preserved with our actions and working with the Department of Conservation."

R.E. Harris, mayor of Cole Camp, Mo.


Hi Lonesome Prairie

Regal fritillary



Conservation Opportunity

The Cole Camp/Hi Lonesome Conservation Opportunity Area (COA) is a rural Missouri landscape that provides an excellent opportunity to conserve prairie and grassland wildlife. Within the area, The Nature Conservancy, Missouri Prairie Foundation and Missouri Department of Conservation own and conserve more than 1,500 acres of remnant prairie. Additional remnant prairies are managed on nearby private land, mostly as hay meadows.

The Cole Camp/Hi Lonesome COA is one of the few remaining Missouri landscapes that support greater prairie chickens, in addition to 19 other species of conservation concern.

Invasive Sericea

Sericea lespedeza (*Lespedeza cuneata*), a legume native to eastern Asia, was planted in the United States as early as 1896. Promoted for years for its use in erosion control and mine reclamation, and as wildlife food and cover, it is widespread in Missouri today.

Sericea's long-lived seeds are stimulated by burning, making the plant difficult to eradicate from prairies. It outcompetes native grasses, native legumes and wildflowers in prairies, resulting in less plant biodiversity. Also, because it is unpalatable to cattle during most of the growing season and replaces more palatable pasture grasses, it degrades range lands.

Sericea lespedeza

Wayne Morton

"These prairies we have are probably more rare and endangered than the rainforest, and, for us in this part of the world, more valuable."

Wayne Morton, president of Missouri Prairie Foundation

Paintbrush Prairie

Pink katydid

Dickcissel

Paintbrush Prairie Natural Area

Named for the bright red-orange flower that appears on prairies each spring, Paintbrush Prairie is classified as a dry-mesic chert prairie. *Dry-mesic* means the conditions are between dry and moist.

Chert is one reason Paintbrush Prairie is still a native remnant of the Osage Plains. Too rocky for growing crops, this area was used for prairie pastures and hay meadows. Currently, it provides habitat for 11 species of conservation concern, including Mead's milkweed and the prairie mole cricket.

Outdoor Calendar

Hunting	open	close
Common Snipe	9/1/05	12/16/05
Coyotes	5/9/05	3/31/06
Crow	11/1/05	3/3/06
Deer		
Archery	9/15/05	11/11/05
	11/23/05	1/15/06
Urban Counties (antlerless only)	10/7/05	10/10/05
Youth	10/29/05	10/30/05
November	11/12/05	11/22/05
Muzzleloader	11/25/05	12/4/05
Antlerless	12/10/05	12/18/05
Dove	9/1/05	11/9/05
Furbearers	11/15/05	2/15/06
Groundhog	5/9/05	12/15/05
Pheasant		
North Zone	11/1/05	1/15/06
Southeast Zone	12/1/05	12/12/05
Quail	11/1/05	1/15/06
Rabbits	10/1/05	2/15/06
Ruffed Grouse	10/15/05	1/15/06
Sora and Virginia Rails	9/1/05	11/9/05
Squirrels	5/28/05	2/15/06
Turkey, archery	9/15/05	11/11/05
	11/23/05	1/15/06
Turkey, fall firearms	10/1/05	10/31/05
Waterfowl	please see the *Waterfowl Hunting Digest* or see www.missouriconservation.org/hunt/wtrfowl/info/seasons	
Woodcock	10/15/05	11/28/05

Fishing		
Black Bass (certain Ozark streams)	5/28/05	2/28/06
impoundments and other streams	year round	
Bullfrog	sunset	midnight
	6/30/05	10/31/05
Gigging Nongame Fish	9/15/05	1/31/06
Trout Parks	3/1/05	10/31/05

Trapping		
Beaver	11/15/05	3/31/06
Furbearers	11/15/05	2/15/06
Otters and Muskrats	11/15/05	varies
see regulations for otter zones season dates and limits		

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of "Missouri Hunting and Trapping Regulations" and "Missouri Fishing Regulations," the "Fall Deer and Turkey Hunting Regulations and Information," the "Waterfowl Hunting Digest" and the "Migratory Bird Hunting Digest." This information is on our Web site at *www.missouriconservation.org/regs/* and at permit vendors.

The Conservation Department's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800/392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to *www.wildlifelicense.com/mo/*.

Meet Our Contributors

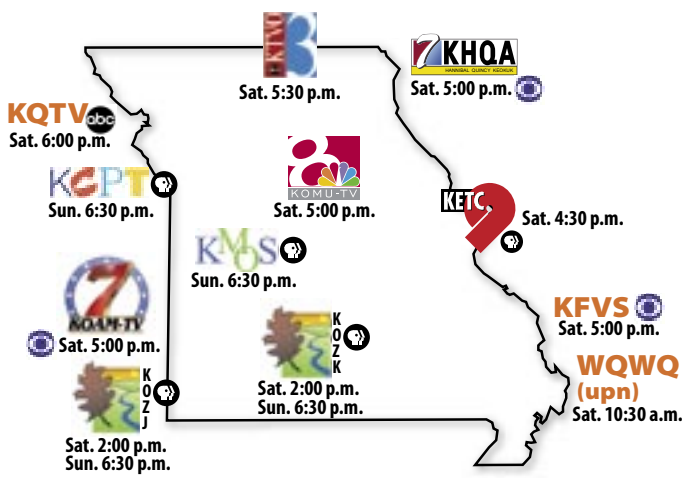
(Above) David Urich, Tim Smith, Tim Nigh, Bob Hrabik, Dennis Figg, Karen Kramer, and Amy Linsenbardt. (Right) Justin Pepper, Peggy Horner and Rick Thom.

The complex web of life described in this issue of the *Conservationist* was made possible by a group of department staff representing many different kinds of expertise.

MISSOURI OUTDOORS

Program Schedule

Television the way Nature intended!



OTHER OUTLETS (Previously aired episodes are also shown on the following)

Brentwood BTV-10 Brentwood City Television
Columbia Columbia Channel
Hillsboro JCTV
Independence City 7 Cable
Joplin KGCS
Kearney Unite Cable
Parkville GATV
Poplar Bluff Poplar Bluff City Cable
Ste. Genevieve Ste. Genevieve Cable
St. Charles SC20 City Cable
St. Louis Charter Cable
St. Louis Consolidated Schools Cable
St. Louis City TV 10
St. Peters St. Peters Cable
Springfield KBLE36/MediaCom
Sullivan Fidelity Cable
West Plains OCTV

Glade Renewal

A pale purple coneflower rises out of the remnants of a glade at Little Lost Creek Conservation Area as a Conservation Department forester cuts a cedar tree in the background. The removal of cedar trees and other tall, woody growth allows sun and rain to reach the ground, rejuvenating overgrown glades. All Wildlife Conservation involves active management to balance and maintain diverse ecosystems.— *Cliff White*